

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims

1. (Currently Amended) A tray transferring apparatus for transferring a tray on which electronic components are mounted, the tray transferring apparatus, comprising:

a main frame;

a fixing means installed on the main frame, for supporting a fixed tray;

a correcting means installed on the main frame, for correcting a tilt angle of a the fixed tray supported by the fixing means;

a gripping means installed on the main frame, for gripping a handling tray; and

at least one sensor installed on the main frame, for sensing ~~gripper plates and the~~ at least one of an operational position of the gripping means and an existence of a handling tray.

2. (Currently Amended) The apparatus of claim 1, wherein the fixing means comprises:

a first fixing unit installed on a first in one side of the main frame, and configured to support for supporting one end of a ~~the~~ fixed tray; and

a second fixing unit installed on a second in the other side of the main frame, ~~for supporting the other end of the~~ and configured to support a second end of a fixed tray.

3. (Currently Amended) The apparatus of claim 2, wherein the first fixing unit comprises:

a pin attached to ~~installed in one side of~~ the main frame;

a tension spring having a first ~~its one~~ end coupled to ~~installed on~~ the pin;

a first fixing member coupled to a second ~~installed in the other~~ end of the tension spring, ~~for elastically directly gripping and configured to elastically grip~~ one end of ~~a~~ the fixed tray, wherein a slot being is formed inside in the first fixing member; and

a slide member coupled to the main frame and installed in ~~to be slidable into~~ the slot of the first fixing member and configured to guide movement of the, ~~for guiding the~~ moved first fixing member.

4. (Original) The apparatus of claim 3, wherein a hooking jaw is formed in one end of the first fixing member, so that the fixed tray can be hooked and clamped thereon.

5. (Currently Amended) The apparatus of claim 3, wherein the second fixing unit comprises~~[[:]]~~ a second fixing member installed on a second ~~in the other~~ side of the main ~~a base frame,~~ and configured to support the second ~~for directly supporting the other end of a~~ the fixed tray; ~~and~~

~~a fastening member for installing the second fixing member on the base frame.~~

6. (Original) The apparatus of claim 5, wherein the second fixing member is formed in a 'L' shape.

7. (Currently Amended) The apparatus of claim 1, wherein ~~at least one~~ the correcting means is installed in ~~the a~~ center of the main frame, ~~for supporting the fixed tray.~~

8. (Currently Amended) The apparatus of claim 1, wherein the correcting means comprises:

a plate installed in the upper portion of the main base frame;

a compression spring installed below ~~in the lower portion of the plate; and~~

a spacer coupled to a ~~installed in the lower portion of the compression spring;~~
~~for and configured to~~ elastically directly correct a tilt angle of a ~~correcting the fixed tray by~~
~~elasticity of the compression spring; and~~

~~a fastening member for coupling and installing the plate, the compression spring and the spacer on the base frame.~~

9. (Currently Amended) The apparatus of claim 1, wherein the gripping means comprises:

a gripping unit ~~for gripping the~~ configured to grip a handling tray;

a driving unit ~~for driving~~ configured to drive the gripping unit; and

a guide unit ~~for guiding~~ configured to guide movement of the gripping unit.

10. (Currently Amended) The apparatus of claim 9, wherein the gripping unit comprises:

a plurality of grippers disposed on opposite ~~in the right and left~~ sides of the main frame, ~~for gripping the~~ and configured to grip a handling tray; and

a plurality of gripper plates disposed on opposite ~~in the right and left~~ sides of the main ~~base~~ frame, wherein the plurality of grippers are ~~also being disposed in the right and lefts sides of the base frame and~~ installed on the plurality of gripper plates.

11. (Currently Amended) The apparatus of claim 9, wherein the driving unit comprises:

a ball screw configured to move ~~for moving~~ the gripping unit; and

a cylinder configured to drive ~~for driving~~ the ball screw.

12. (Currently Amended) The apparatus of claim 9, wherein the guide unit comprises[[:]] a rod that passes through the gripping unit, wherein the rod is configured to guide movements ~~for moving the gripper plate of the gripping unit; and~~

~~a guide block for guiding the rod.~~

13. (Currently Amended) The apparatus of claim 1, wherein the at least one sensor is an optical sensor.

14. (Canceled)

15. (Currently Amended) The apparatus of claim [[14]] 13, wherein the optical sensor comprises first and second optical sensors.

16. (Currently Amended) The apparatus of claim 15, wherein the first optical ~~sensor is~~ ~~sensors are~~ installed in the upper portion of the main frame and is configured to sense movement of, ~~for sensing~~ the gripper means ~~plates,~~ and wherein the second optical ~~sensor is~~ ~~sensors are~~ installed ~~in both sides~~ at a side of the main frame, ~~for sensing the~~ and is configured to sense an existence of a handling tray.

17. (New) The apparatus of claim 1, wherein the correcting means is configured to bias a fixed tray against fixing members of the fixing means to thereby correct a tilt angle of a fixed tray supported by the fixing means.

18. (New) The apparatus of claim 17, wherein the correcting means comprises an elastic element mounted on the main frame and configured to press against a fixed tray supported by the fixing means.

19. (New) The apparatus of claim 17, wherein the correcting means comprises first

and second elastic members that are mounted, respectively, adjacent first and second ends of the main frame, and wherein the first and second elastic members are configured to press against a fixed tray supported by the fixing means.

20. (New) The apparatus of claim 1, wherein the fixing means is configured to hold a fixed tray immediately adjacent the main frame, and wherein the gripping means is configured to hold a handling tray against a side of the fixed tray opposite the main frame.

21. (New) The apparatus of claim 1, wherein the gripping means is configured to hold a handling tray against a side of a fixed tray opposite the main frame such that electronic components arranged in holding depressions in the handling tray are prevented from escaping the holding depressions.

22. (New) A tray transferring apparatus for transferring a handling tray bearing electronic components, comprising:

a main frame;

a fixing unit installed on the main frame and configured to hold a fixed tray immediately adjacent the main frame;

a gripper unit installed on the main frame and configured to hold a handling tray bearing a plurality of electronic components in holding depressions, wherein the gripper unit is configured to hold the handling tray adjacent a side of the fixed tray opposite the main frame.

23. (New) The apparatus of claim 22, wherein the gripper unit is configured to hold the handling tray against the fixed tray to prevent the electronic components from escaping the holding depressions.

24. (New) The apparatus of claim 22, further comprising a correcting unit that is configured to correct a tilt angle of a fixed tray held by the fixing unit.

25. (New) The apparatus of claim 24, wherein the correcting unit comprises a biasing member that is configured to press a fixed tray against gripper jaws of the fixing unit.

26. (New) The apparatus of claim 25, wherein the biasing member is mounted on the main frame.